



SUBSTITUTE SPECIFICATION

BACK CARTRIDGE COUPLING STRUCTURE

BACKGROUND OF THE INVENTION

Field of Invention

5 The present invention relates to a coupling structure, which is used for coupling a body and a back cartridge in a handheld data processor, and more particularly to a coupling structure that prevents the body and the back cartridge of the handheld data processor from scratch when they are coupled together.

Related Art

10 At present, a back cartridge is used to provide the handheld data processor sufficient electric power, it can be furnished with a backup battery or other devices that can expand the function of the handheld data processor (such as CF or SD card receptacle module or wireless communication module). But, in conventional art, the back
15 cartridge and the body of the handheld data processor, such as Visor series products produced by Handspring, is coupled by means of an upward-faced connector slot disposed in the body and a 90° projected, downward-faced connector disposed on the back cartridge. The back cartridge must be slid face to the body in order to let the connector slot and connector to be jointed when they are coupled. Therefore, the surface of the back cartridge and the body will be scratched over a long period of time.
20 Also, a larger gap must be maintained between the back cartridge and the body so that they can be slid smoothly. As a consequence, the back cartridge and the body may not be coupled tightly.

 Therefore, it is important to invent a back cartridge coupling structure in order to prevent the surfaces of the body of the handheld data processor and back cartridge from
25 scratch each other when they are coupled together.

surfaces of a back cartridge and body from scratch each other through coupling the body and the back cartridge in a vertical direction.

5 The body of a handheld data processor comprises a connector slot disposed at its coupling face . A back cartridge comprises a connector, corresponding to the connector slot, disposed on the coupling face of the back cartridge. The coupling structure comprises a seizing element and outer lining. The seizing element is disposed on the coupling surface of the body, and the outer lining, corresponding to the seizing element, is disposed at one side of the back cartridge and can be moved parallel to the coupling face of the back cartridge. To couple the body and the cartridge, the two coupling
10 surfaces need to be pressed toward each other in vertical direction so that the connector can be inserted into the connector slot (it also means that the back cartridge is placed on the body). The outer lining is then slid parallel to the coupling face of the back cartridge. The body and back cartridge are coupled together when the back cartridge is stuck by the seizing element.

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BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will become more readily apparent from the description of the exemplary embodiments that follows, with reference to the attached drawings in which:

20 FIG. 1 is an explosive view of a coupling structure according to an exemplary embodiment of the present invention.

FIG. 2 is a cross sectional view illustrating a coupling structure according to an exemplary embodiment of the present invention.

25 FIGS. 3A, 3B and 3C are schematic views illustrating a coupling structure according to an exemplary embodiment of the present invention.

FIGS. 4A-4B is schematic view of a coupling structure according to another embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Referring to FIG. 1, a back cartridge coupling structure 30 according to the invention is used in a handheld data processor 1, which comprises a body 10 and a back cartridge 20.

5 The body 10 comprises a coupling surface 11 and a connector slot 12; the connector slot 12 is disposed in the coupling surface 11.

 The back cartridge 20 comprises a coupling face 21 and a connector 22; the connector 22, corresponding to the connector slot 12 of the body, is disposed on the coupling face 21. The connector 22 and the connector slot 12 can be jointed together
10 when the body 10 is coupled to the back cartridge 20.

 The coupling structure 30 comprises a seizing element 31, an outer lining 32, sliding groove 33 and detaining holes 34. The seizing element 31 is disposed on the coupling surface 11 of the body 10 and is parallel to the edge of the coupling surface 11 of the body 10. The outer lining 32, corresponding to the seizing element 31, is
15 disposed at one side of the back cartridge 20 and comprises a projecting column 321, buttons 322 and a sliding clasp 323. The sliding clasp 323 is disposed corresponding to one end of the seizing element 31 in order to hook up this end of seizing element 31 to prevent the back cartridge from falling down in the direction opposite to this end after the body 10 is coupled with the back cartridge 20, as FIG. 2 shown. The sliding
20 groove 33 corresponding to the projecting column 321 is disposed in the back cartridge 20 so as to allow the projecting column 321 to be slid in the groove 33. Therefore, the outer lining 32 can be slid along the edge of the coupling face 21 of the back cartridge 20. The detaining holes 34 corresponding to the button 322s are disposed in the body 10 so that the buttons 322 can fit into the detaining holes 34 when the body 10 is
25 coupled to the back cartridge 20.

 To couple the body 10 and the back cartridge 20, the two coupling surfaces 11, 21 of the body 10 and the back cartridge 20 need to be pressed toward each other in vertical direction so that the connector 22 can be inserted into the connector slot 12 (it also means that the back cartridge 20 is placed on the body 10), as shown in FIG. 3A. The

outer lining 32 is then slid parallel to the coupling face 21 of the back cartridge 20 (the projecting column 321 is slid along the sliding groove 33). The outer lining 32 is stuck by the seizing element 31 when it is slid, thereby to increase the tightness of the coupling of the body 10 and back cartridge 20. The sliding clasp 323 hooks up one end of the seizing element 31. The buttons 322 fit into the detaining holes 34, thereby to couple the body 10 and back cartridge 20. The arrangement of the buttons 322 and detaining holes 34 can increase the tightness of the coupling.

Furthermore, referring to FIGS. 4 - 4B, the end of the seizing element 31 that first comes into contact with the outer lining 32 is thinner than the other end. Such kind of design can be used in the profile of the seizing element 31 whatever it is in a direction parallel or perpendicular to the coupling face 11 so as to increase the tightness of two sides of or a direction perpendicular to the body 10 and back cartridge 20.

The coupling face 11 does not have to be at the back of the body 10. It may be at the front surface or other positions.

The back cartridge coupling structure according to the present invention may prevent the surfaces of the back cartridge and body from being scratched, because the back cartridge is pressed toward the body face to face in vertical direction while coupling. Furthermore, it is convenient to use only the outer lining according to the present invention to couple the back cartridge and body tightly.

The exemplary embodiments of the present invention have been described in an illustrative manner. Many modifications and variations of the exemplary embodiments of the present invention are possible in light of the above teachings. Therefore, it is to be understood that within the scope of the appended claims, the exemplary embodiments of the present invention may be practiced otherwise than as specifically described above.

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